



Direct Contact Risk Assessment

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Direct Contact Risk Assessment

- Phase 1 Screening Approach
- Phase 2 Site-Specific Risk Assessments



Phase 1 Screening Approach

- Direct contact with soils and sediments
 - Incidental ingestion and dermal absorption
- Risk-based screening of PCBs
- Land use
 - Residential, recreational, commercial/industrial, agricultural



Exposure Areas

Soil

- Individual properties (Reaches 5 & 6)
- Groups of properties (Reaches 7 & 8)
- Reach 9
- State (Connecticut, Reaches 10-16)

Sediment

- Stretches of river (Reaches 5 & 6)
- Free flowing vs. impoundments (Reaches 7 & 8)
- Reach 9
- State (Connecticut, Reaches 10-16)



Phase 1 Screening Approach

- Exposure point concentration
 - Maximum concentration estimate
- Compare concentration to screening risk-based concentration (SRBC):
 - If $< \text{SRBC}$ – eliminate from further evaluation
 - If $\geq \text{SRBC}$:
 - Transfer to GE per CD (high contact residential properties - $> 2 \text{ ppm}$)
 - Retain for further evaluation



Phase 1 Screening Risk-Based Concentrations

Soil

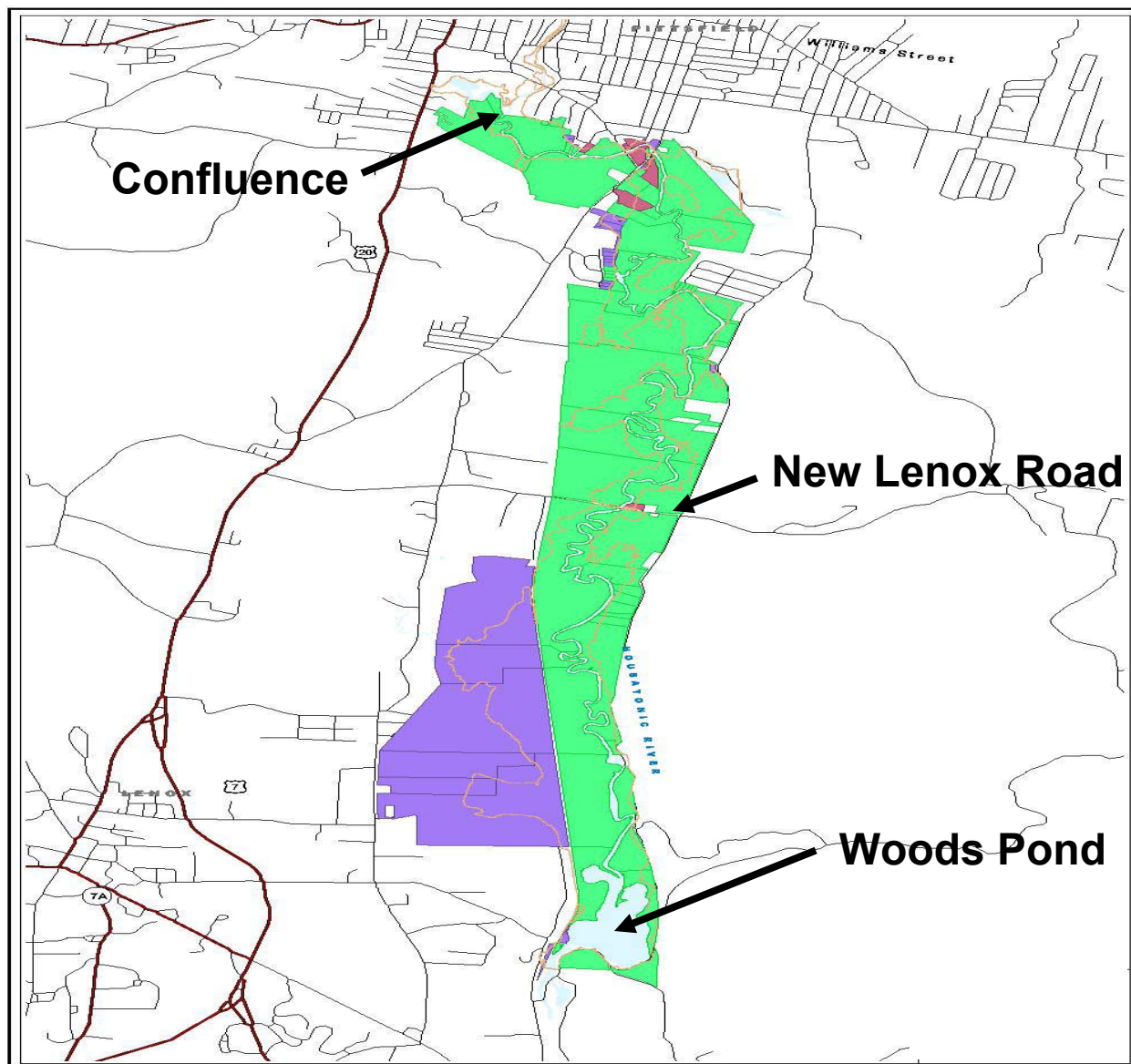
Residential	2 ppm – high contact 5 ppm – low contact
Recreational	5 ppm – high contact 7 ppm – low contact
Agricultural	2 ppm
Commercial/industrial	20 ppm

Sediment

Sediment exposure	3 ppm – high contact 5 ppm – low contact
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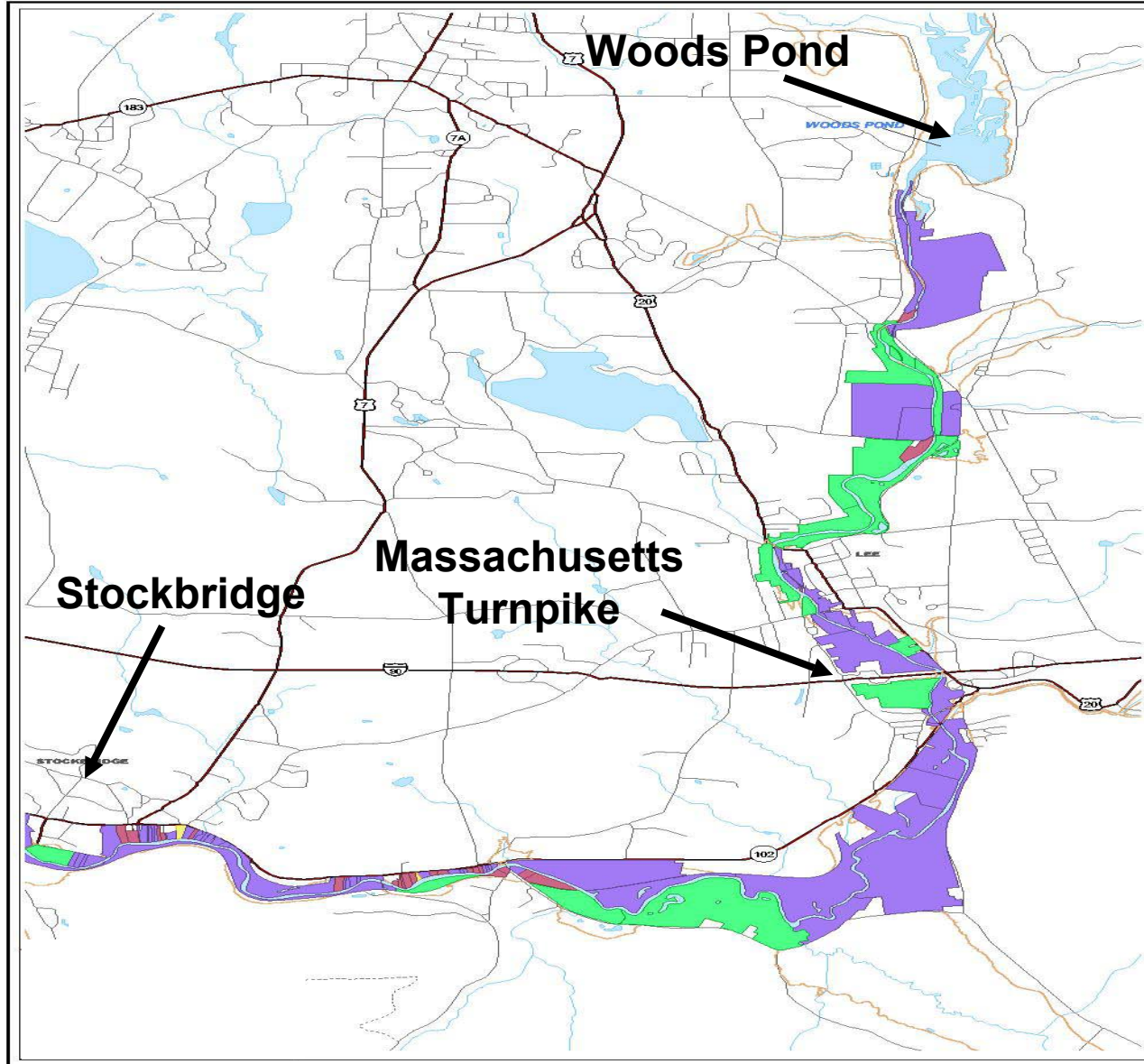


Reaches 5 and 6 Screening Results



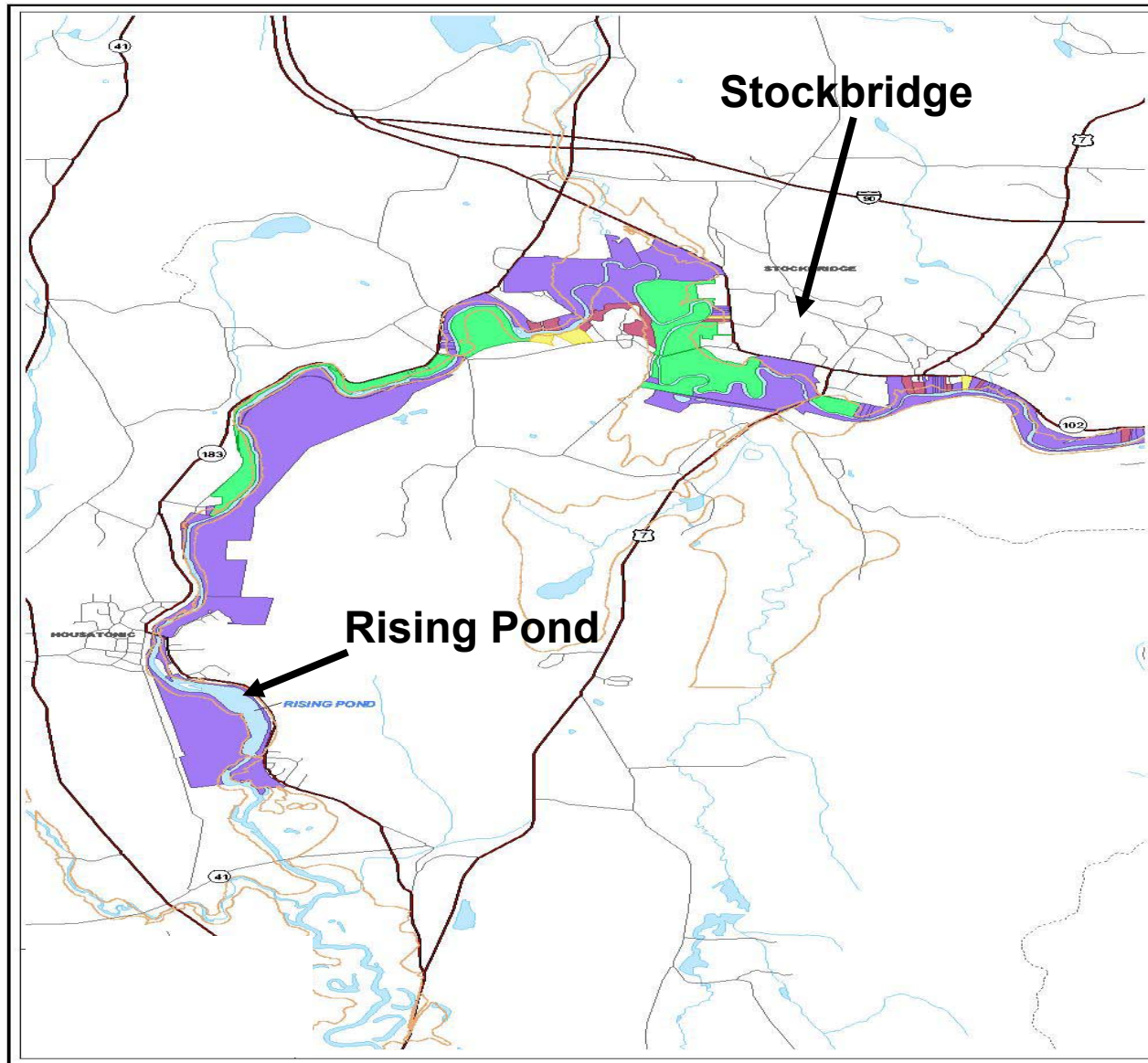


Reaches 7 and 8 Screening Results





Reaches 7 and 8 Screening Results





Reach 9 Screening Results

- Rising Pond Dam to Connecticut Border

	Frequency of Detection	Range of Detected Concentrations (ppm)	Arithmetic Mean Concentration (ppm)	95% Upper- confidence Limit (ppm)
Medium				
Floodplain Soil	92/205	0.26 – 6.32	0.499	0.505
Riverbank Soil	9/12	0.258 – 1.2	0.51	0.759
Sediment	12/60	0.161 – 0.676	0.29	0.351



Reaches 10 through 16 Screening Results

- Connecticut Border to Shelton/Derby Dam
 - Soil – eliminated
 - Reach 9 eliminated
 - Minimal floodplain
 - Sediment – eliminated

Medium	Frequency of Detection	Range of Detected Concentrations (ppm)
Sediment	4/28	0.026 – 0.47



Phase 2 Direct Contact Risk Assessment

- Site-specific risk assessments
 - 90 soil exposure areas
 - 66 in Reaches 5 & 6
 - 24 in Reaches 7 & 8
 - 8 sediment exposure areas
 - 3 in Reaches 5 & 6
 - 5 in Reaches 7 & 8



Exposure Scenarios

- Residential
 - Current
 - Future
- Recreational
- Agricultural
- Commercial/industrial
 - Utility worker
 - Groundskeeper



Recreational Exposure Scenarios

- General recreation
- ATV/dirt and mountain bike rider
- Recreational canoeist/boater
- Marathon canoeist
- Angler
- Waterfowl hunter
- Sediment exposure

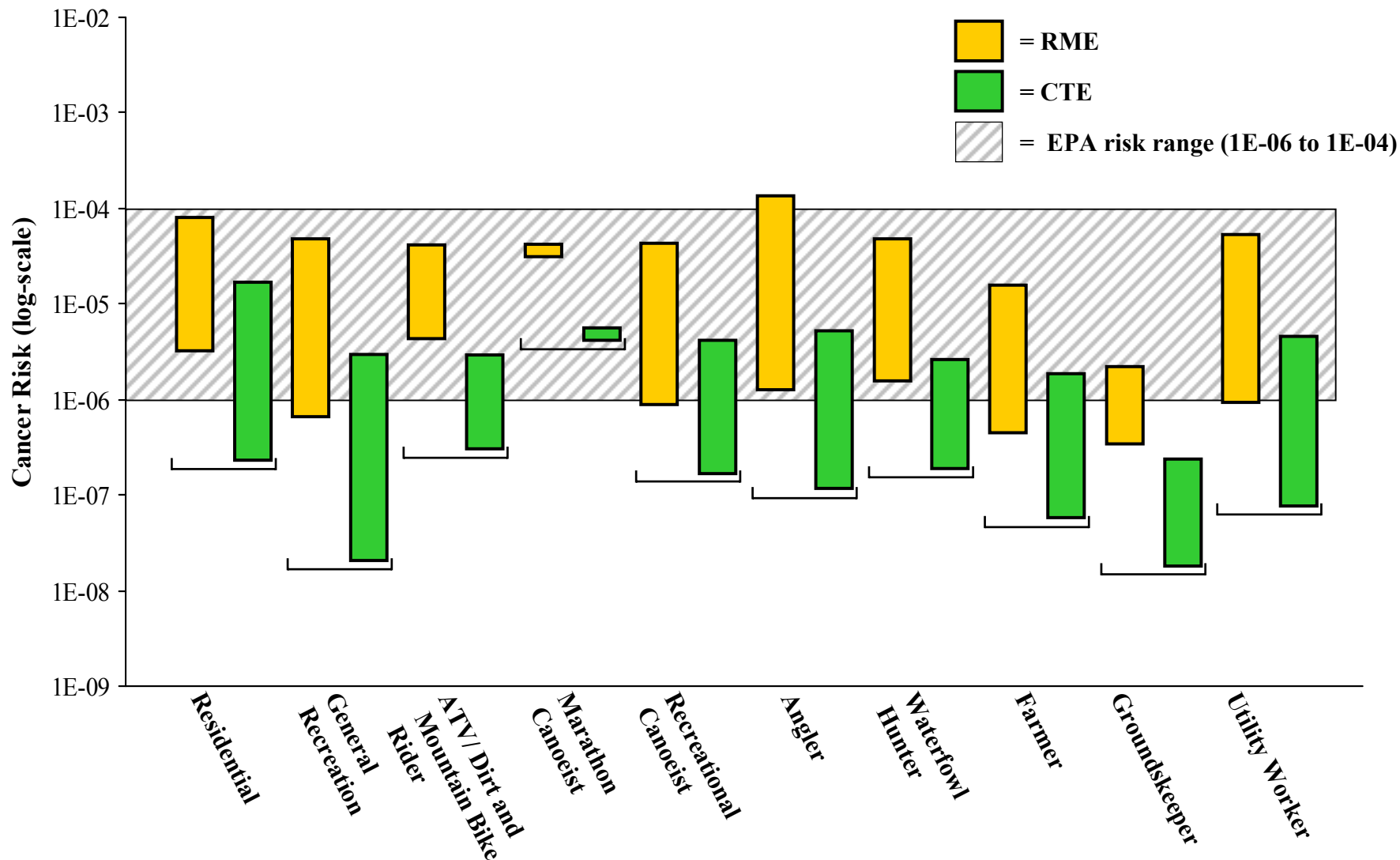


Exposure Parameters

- Frequency
- Duration
- Ingestion rate
- Exposed skin surface area
- Dermal adherence factor
- Dermal absorption factor

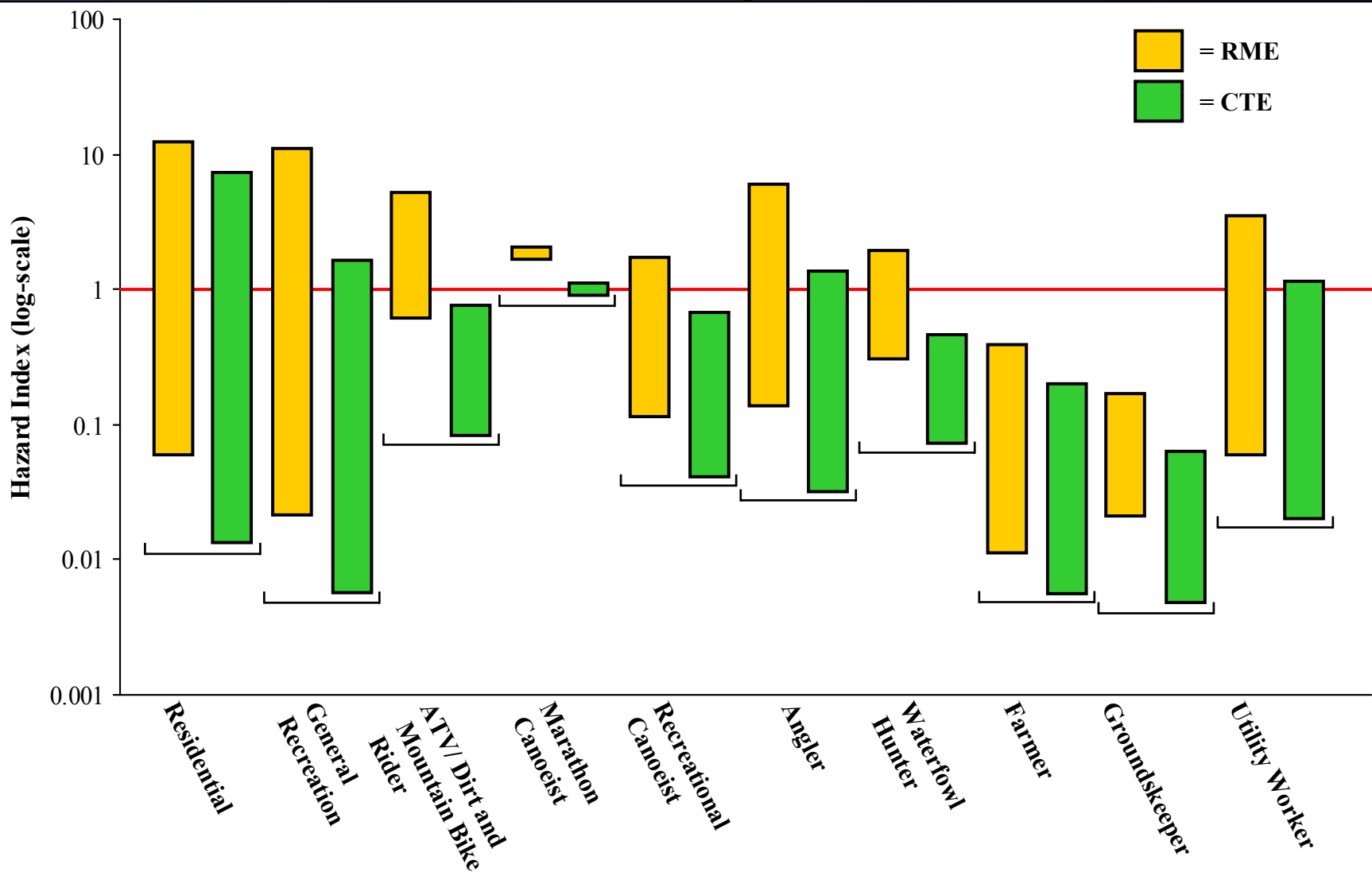


Summary of Cancer Risk Estimates from Soil Exposure



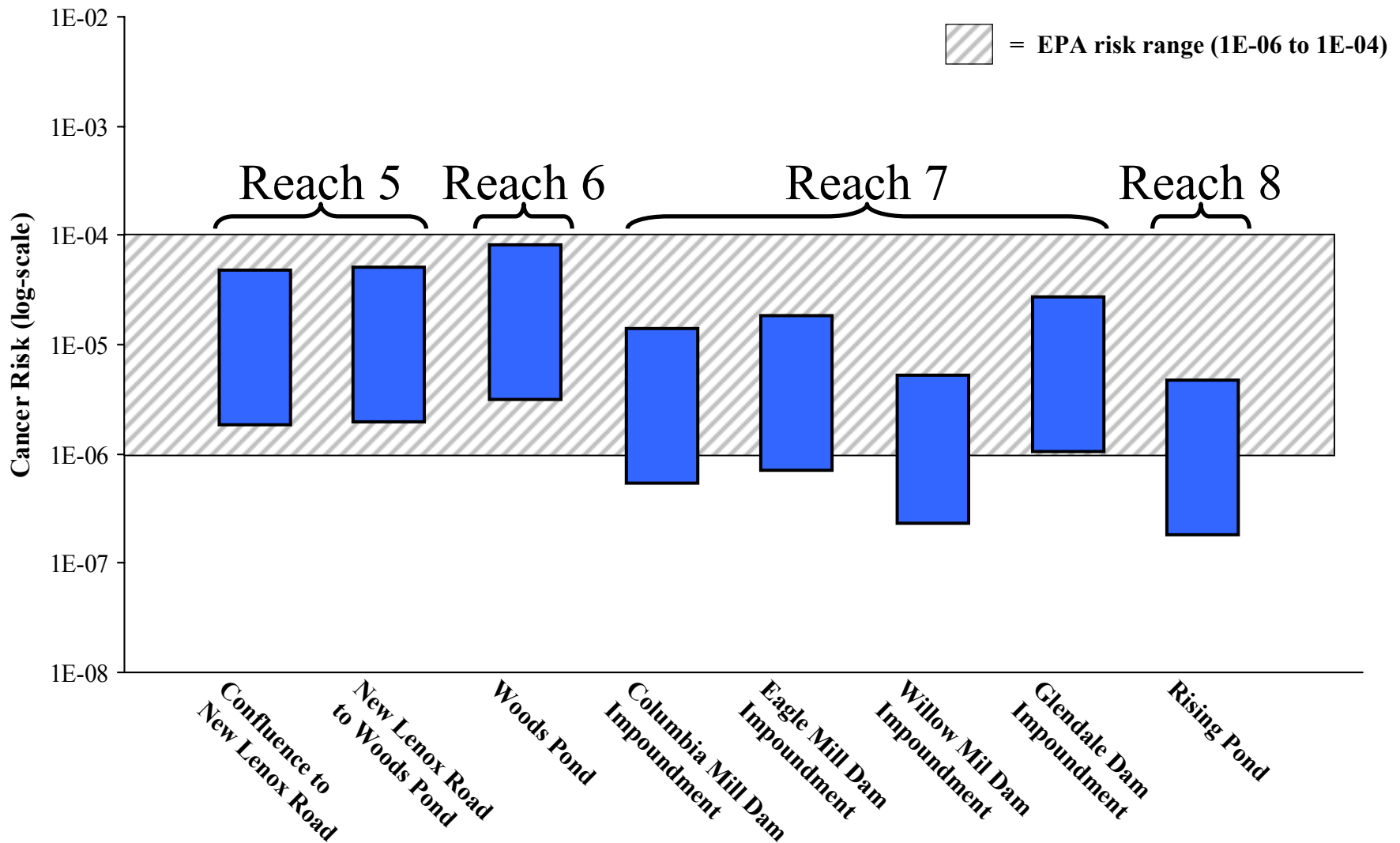


Summary of Hazard Indices from Soil Exposure



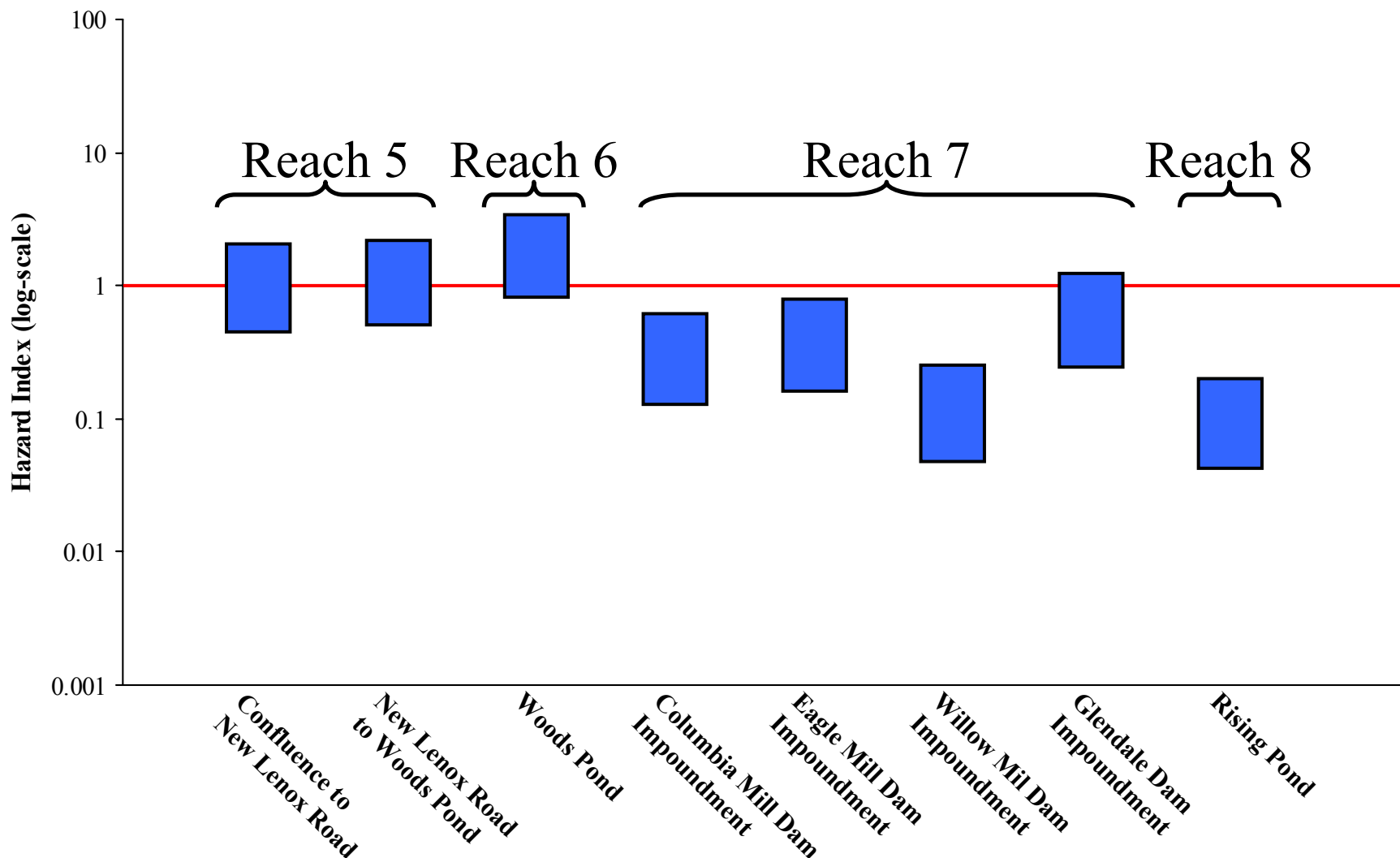


Summary of Cancer Risk Estimates from Sediment Exposure





Summary of Hazard Indices from Sediment Exposure





Summary of Cancer Risk Estimates

